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## **Saline Alone vs Saline plus Mannitol Hydration for the Prevention of Acute Cisplatin Nephrotoxicity: A Randomized Trial**

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### **Background**

Cisplatin is widely used as an effective chemotherapy in diverse neoplasms and is associated with renal toxicity. Several studies suggest that pre-hydration plus mannitol prior to chemotherapy with cisplatin prevents nephrotoxicity. The aim of this study is to determine the acute effects of hydration plus mannitol on renal function in patients receiving cisplatin.

### **Method**

Fifty patients who were eligible to receive chemotherapy with cisplatin alone or in combination with other chemotherapy were randomized to receive 1L saline alone (A) or saline plus mannitol before and after chemotherapy. The mannitol group received 12.5 g of mannitol in saline solution. Serum Creatinine (Ser Cr), BUN, and GFR were measured at baseline (no more than 3 days prior to therapy) and on Day 1, 5, and 14. Baseline characteristics were analyzed using t-tests or chi-squared tests. Repeated Measures (RM) ANOVA was used to compare the change in BUN, creatinine, GFR, and BUN to Creatinine ratio.

### **Result**

Data for 48 patients (36 male and 12 female) were collected. The median age is 57 (range 18 to 78); 23 received saline alone and 25 received mannitol. There are no difference between randomized groups between Age, Gender, and Race. The mean BUN and BUN to creatinine ratio significantly increased by 46% and 37% respectively ( $p < 0.001$ ), while the corresponding mean Serum Cr did not significantly change over time and mean GFR peaked at day 1 then decreased by day 5 ( $p=0.001$ ). All variables returned to baseline by Day 15. Twenty patients (42%) had grade 1 increase in Ser Cr (25% in A and 17% in B,  $p=0.078$ ). No patients had grade 2 or greater in the mannitol group, while 2 patients had grade 2 or grade 3 in saline only group. RM ANOVA analysis show no difference between randomized groups from baseline through Day 1, Day 5, and Day 14 for BUN, creatinine, GFR, and BUN to Creatinine ratio.

## **Conclusion**

Cisplatin caused acute decline in renal function as determined by BUN, BUN to Ser Cr ratio and GFR, however, addition of mannitol to pre-hydration fluid did not change the outcome.

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